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Encapsulation and characterization of the aqueous extract of Hancornia speciosa-Mangaba from the Cerrado of Goiás

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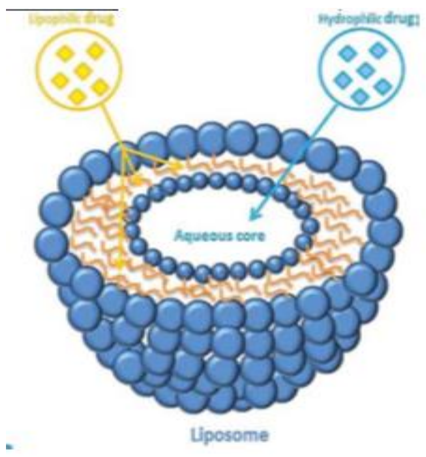
INTRODUCTION & AIM

Liposomes stand out:

- as nanovesicles with lipid bilayers that can be used for several applications;
- such as the encapsulation and the delivery of compounds for food applications.



- Encapsulate: hydrophobic and hydrophilic compounds.
- In this study, the following liposomes composed of soybean (SL) lecithins were produced by reverse-phase evaporation and used to encapsulate phenolic extracts of Mangaba (SL-MAPE).

METHOD

Reverse phase evaporation

Soybean lecithins (SL)

Mangaba Extract

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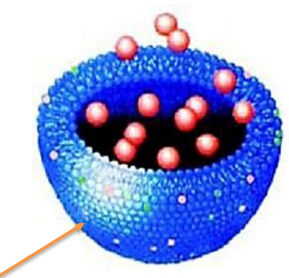
Soy Lecithin

⇩

Reverse phase evaporation



Liposome- encapsulating phenolic extracts from mangaba (SL-MAPE).

Liposomes were characterized:

- Size distribution (nm),
- Polydispersity index (PDI)
- ζ-potential (mV).
- Encapsulation efficiency EE(%)

RESULTS & DISCUSSION

Table 1. Analysis size, polydispersity index (PDI), and zeta potential of liposome particles.

Analyses / [mg/mL]	SL-MAPE		
	1.0 mg/mL	**1.5 mg/mL**	**2.0 mg/mL**
SD (nm)	197.43	318.2	238.33
PDI	0.280	0.490	0.470
ζ-potential (mV)	-37.00	-33.7	-35.7
(EE%)	80.14	86.18	88.09

Size distribution-SD(nm);Polydispersity index (PDI); Encapsulation efficiency (EE%); [mg/mL]=Lipid matrix concentration for encapsulation.

⇩

- After obtaining preliminary results, it was found that liposomes are good candidates for encapsulating phenolic extracts from mangaba (SL-MAPE).

CONCLUSION

- So, this study increases our understanding of the encapsulation of phenolic extracts from the fruits of the Goiás savannah.
- The results provide vital details for developing liposome formulations for pharmaceuticals and foodstuffs.

FUTURE WORK / REFERENCES

Machado, A. R., Pinheiro, A. C., Vicente, A. A., Souza-Soares, L. A., & Cerqueira, M. A. (2019). Liposomes loaded with phenolic extracts of Spirulina LEB-18: Physicochemical characterization and behavior under simulated gastrointestinal conditions. Food Research International, 120, 656–667. https://doi.org/10.1016/j.foodres.2018.11.023

Machado, A., Assis, L. M., Costa, J. A., Badiale-Furlong, E., Motta, A., Micheletto, Y. M. S., & Souza-Soares, L. (2015). Application of sonication and mixing for nanoencapsulation of the cyanobacterium Spirulina platensis in liposomes. International Food Research Journal, 22, 96–101